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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ORTIZ, XIOMARA Y

ART UNIT PAPER NUMBER

2141

DATE MAILED: 04/05/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

PR4

Office Action Summary

Application No.

09/628,306

Applicant(s)

KINJO ET AL.

Examiner

Xiomara Y. Ortiz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The present Office action is in response to the Amendment dated 20 January 2004.
2. Claims 1-10 are pending in the application.

Specification

3. Previous objection to the abstract has been overcome with the corrections included in Amendment A.
4. Previous objection to the title has been overcome with the corrections included in Amendment A.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 1,2,3,4,5,6,7,8,9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumasawa et al. U.S Patent No. 6,101,574 in view of Kikinis. U.S. Patent No. 6,289,389 B1.

Regarding claims 1 and 5, Kumasawa et al. discloses two systems that are linked together through a bridge that connects the internal buses of the systems so that data instructions can be transmitted and received. The first and second systems comprise a duplex disk control unit whose each disk controller incorporates an MPU, a cache memory, an internal bus, and a controller to control disk units (fig.2). The MPUs are connected to the internal bus which at the same time is connected through said bridge to the other internal bus to allow communication between the MPUs and copy the data from one cache memory to the other (col.7 lines 9-33). However Kumasawa et al., fails to disclose that the first communication path is used for information communication when a transfer size between the first system and the second system is smaller than a predetermined size; and the second communication path which is used for information communication when the transfer size between the first system and the second system is larger than the predetermined size and has a larger transfer capability than that of said first communication path when the transfer size is larger than the predetermined size, and that the main control means for selectively using one of said first and second communication paths is in accordance with a size of information subjected to information communication with a counterpart system.

However Kikinis teaches a first link from the server to transmit data to the user via a first delivery path, a second link from the server to transmit data via second delivery path to the user, the second path having more bandwidth than the first path, where the transmission control routines select which path for transmission, based on size of the data (abstract).

Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention suggested by Kumasawa and combine it

with the invention disclosed by Kikinis. The results of this combination would lead to the invention of Kumasawa, instead of connecting the two systems through one path, connecting the systems using two paths wherein the path to be used, is selected in accordance with the size of the data. One of ordinary skill in the art would have been motivated to do this combination in order to increase speed and performance in transmitting data (Kikinis col.1 lines 5-10).

Regarding claim 2, the above combination discloses all the limitations in claim 1, and also discloses internal buses 35-1 and 35-2 each connected to an MPU 20-1 and 20-2 (fig.2). A system, communicates with the counterpart system through said first path so that instructions a data (small data) can be transmitted and received between MPUs 20-1 and 20-2, (Kumasawa col.7 lines 10-33). A system, communicates with the counterpart system through said second path so that the data on the cache (larger data) that is updated by one disk control unit, is copied to the other disk control unit in order to guarantee that the cache data of the two disk control units are identical (Kumasawa col.7 lines 10-33). Each paths are connected through a bridge, wherein a bridge, like an interface, makes a connection between the two system in order to allow the systems to communicate.

Regarding claim 3, the above combination discloses all the limitations in claim 2, and also discloses at least one disk apparatus path commonly accessible from the first and second system, and a third communication path for connecting the first and second systems (Kumasawa fig. 2). But the combination fails to disclose that when a failure occurs on either first or second communication path, said third communication path may be used by the main control as an alternative path for the first or second path. However Kikinis teaches as a fail-safe operation upon a failure of one of the delivery paths, all the data to be routed by the remaining path

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(Kikinis col.3 lines 10-16). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention suggested by Kumasawa and combining it with the invention disclosed by Kikinis. The results of this combination would lead to use the third path as an alternative path of the first path or second path in case of a failure.

One of ordinary skill in the art would have been motivated to do this combination in order to perform a fail-safe operation in case of a failure in one of the delivery paths (Kikinis col.3 lines 10-16).

Regarding claim 4, the above combination discloses all the limitations in claim 2 and also discloses a system wherein the first and second systems comprise a duplex controller whose each controller incorporates a cache memory using a mirrored cache scheme, and second interface control means causes a second interface control means in the counterpart system to copy data stored in the cache memory in its system to a cache memory in the counterpart system through said second communication path in accordance with an instructions from said main control means in its system (Kumasawa fig. 2 for duplex controller and cache memories and col.7 lines 9-33, where the data on the cache is updates by one disk control unit, the updated data is copied to the other disk control unit in order to guarantee that the cache data of the two-disk control unit are identical).

Regarding claim 6, the above combination discloses all the limitations in claim 5 and also discloses a system wherein the first and the second system comprises a controller for controlling a hard disk drive (Kumasawa col.7 lines 9-33 for two disk control units 12-1 and 12-2, that are

connected to six disk units 18-1 to 18-6 through a string controller 16 under the domination of the disk control units and fig.2).

Regarding claim 7, the above combination discloses all the limitations in claim 6 and also discloses each of the first and second system comprises a cache memory for storing transferred from a host apparatus (Kumasawa fig.2 for cache memories 32-1 and 32-2 and col.7 lines 28-33), a control signal necessary for transmitting data stored in the cache memory to said first communication path and the data stored in the cache memory is transmitted to said second communication path (Kumasawa col.3 lines 9-33 for instructions and data (small) transmitted and received between MPUs 20-1 and 20-2, for data updated in one cache copied into the other disk control unit (larger data) in order to guarantee the cache data of the two disk control units to be identical, and Kikinis for transmitting data using first or second path depending on the size of the data, wherein the second path has a broader bandwidth, abstract).

Claims 8-10 are identical to claims 2-4, therefore claim 8-10 are rejected under the same rationale.


Response to Arguments

Applicant's arguments, see Amendment A, filed January 20, 2004, with respect to the rejection(s) of claim(s) 1-10 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kikinis U.S. Patent No. 6,289,389 B1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiomara Y. Ortiz whose telephone number is (703) 305-6783. The examiner can normally be reached on Monday-Friday from 7:30AM to 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (703) 305-4003. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Xiomara Y. Ortiz
Patent Examiner
Art Unit 2141


RUPAL DHARIA
SUPERVISORY PATENT EXAMINER